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PATIENT-
FOCUSED
EPISODES
OF CARE



Measurement Framework:
Evaluating Efficiency Across
Patient-Focused Episodes of Care

Measurement Framework: Evaluating Efficiency Across Patient-Focused Episodes of Care

Foreword


AMERICANS DESERVE VALUE from their healthcare experiences. Value—encompassing quality, cost, and outcomes and ideally driven by patient preferences of care—is sorely lacking in the U.S. healthcare system today.

Per capita spending on healthcare in the United States is more than double that of other industrialized nations, yet the United States ranks poorly compared with other countries on key indicators of the quality of care patients receive and their health status. Furthermore, approximately 30 percent of healthcare spending is devoted to services that provide no health benefit to patients. These are the hallmarks of an inefficient system.

Efficiency—so important that the Institute of Medicine has deemed it one of the six aims of a quality healthcare system—is notoriously difficult to measure. The road map to healthcare quality improvement must include measures of efficiency that not only accord with patients’ preferences but also reflect national priorities and goals for quality improvement. Thus, the National Quality Forum (NQF), which was established in 1999 to facilitate widespread healthcare quality improvement, sought to endorse a workable and effective framework for evaluating the efficiency of care over time.

This report represents the culmination of that project. The framework contained herein was vetted through NQF’s public comment and voting process, granting it NQF-endorsed® status. It is viewed as a living document that will continue to evolve as evidence and practice continue to inform its key components.

NQF thanks the Evaluating Efficiency Across Patient-Focused Episodes of Care Steering Committee, the Committee’s co-chairs Elliott Fisher, MD, MPH, and Kevin Weiss, MD, MPH, and NQF Members for their stewardship of this project and their commitment to the creation of a high-performing, high-value healthcare system.



Janet M. Corrigan, PhD, MBA
President and Chief Executive Officer

The mission of the National Quality Forum is to improve the quality of American healthcare by setting national priorities and goals for performance improvement, endorsing national consensus standards for measuring and publicly reporting on performance, and promoting the attainment of national goals through education and outreach programs.

Primary support for this project was provided by the Robert Wood Johnson Foundation (www.rwjf.org). Additional funding was provided by the Commonwealth Fund (www.commonwealthfund.org).

Recommended Citation: National Quality Forum (NQF). *Measurement Framework: Evaluating Efficiency Across Patient-Focused Episodes of Care*. Washington, DC: NQF; 2009.

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ISBN: 978-1-933875-42-2

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Measurement Framework: Evaluating Efficiency Across Patient-Focused Episodes of Care

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Measurement Framework: Evaluating Efficiency Across Patient-Focused Episodes of Care

Executive Summary

ALTHOUGH HEALTHCARE SPENDING per capita in the United States is more than double that of other industrialized nations, the United States ranks comparatively low on key indicators of the quality of care and population health status.¹ Inefficiencies such as duplicate tests and widespread regional practice variations plague the system. In one study, more than 4 in 10 Americans reported experiencing inefficient, poorly coordinated, or unsafe care.² This combination of high cost and low quality indicates a system that is of poor value, and Americans clearly deserve better.

Performance measurement is essential to system transformation.³ Substantial progress has been made in developing and implementing reliable measures of healthcare quality. And although there are several notable exceptions, most quality measurement efforts are poorly coordinated and do not focus on areas with the greatest potential to improve outcomes or control costs. Thus, we have yet to achieve the healthcare system we desire that embraces the Institute of Medicine's aims for safe, timely, effective, efficient, equitable, and patient-centered care.

To provide guidance to key stakeholder groups in accelerating toward a high-performing, high-value healthcare system, the National Quality Forum (NQF) convened a Steering Committee to develop a framework for evaluating the efficiency of care over time, including clear definitions and a shared vision of what can be achieved around quality, cost, and value, serving as a foundation for the work of larger performance improvement efforts. This report presents the NQF-endorsed[®] measurement framework for assessing efficiency, and ultimately value, associated with the care over the course of an episode of illness and sets forth a vision to guide ongoing and future efforts.

This framework consists of the following:

- key terms and definitions;
- an explanation of the patient-focused episode of care approach;
- domains for performance measurement for evaluating efficiency; and
- guiding principles.

Measurement Framework: Evaluating Efficiency Across Patient-Focused Episodes of Care

Key Terms and Definitions⁴

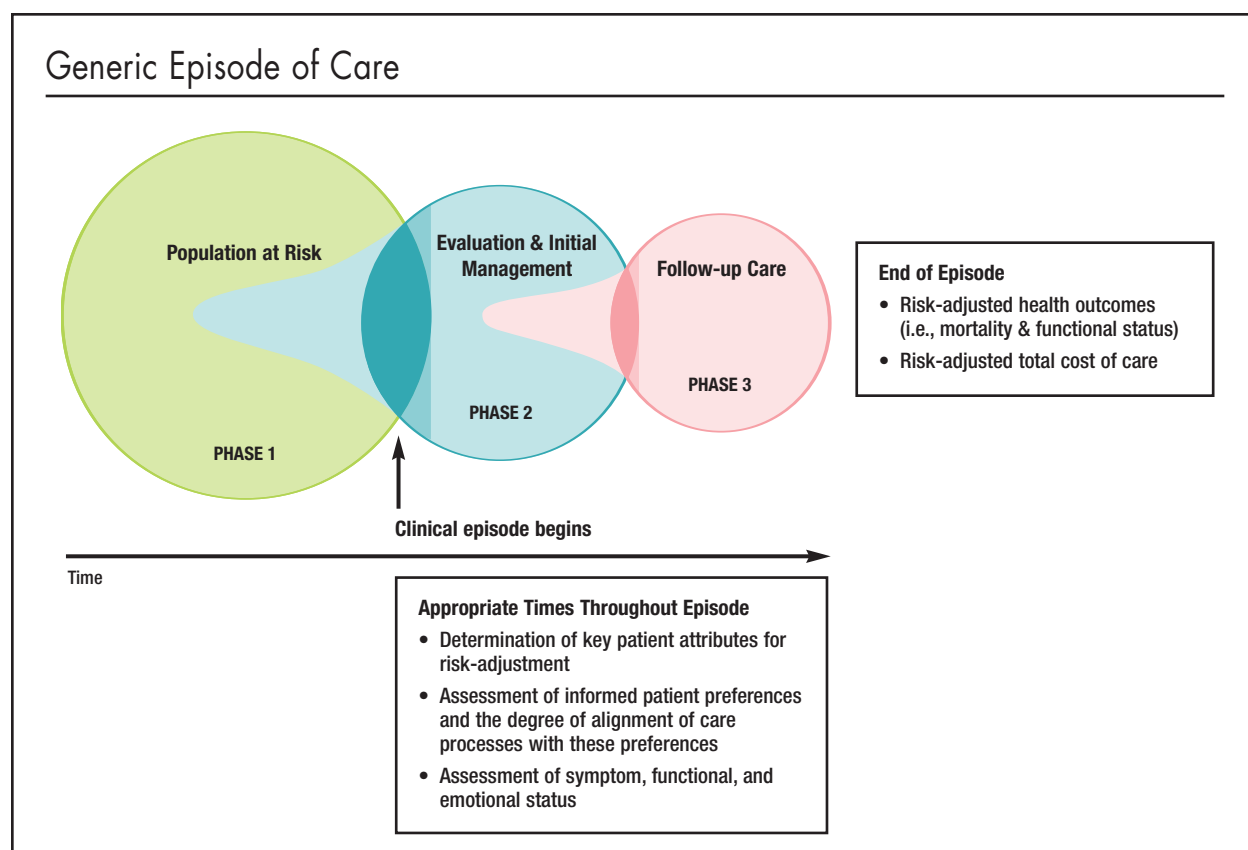
- **Quality of care** is a measure of performance on the Institute of Medicine's (IOM) six aims for healthcare: safety, timeliness, effectiveness, efficiency, equity, and patient-centeredness.
- **Cost of care** is a measure of the total healthcare spending, including total resource use and unit price(s), by payor or consumer, for a healthcare service or group of healthcare services associated with a specified patient population, time period, and unit(s) of clinical accountability.
- **Efficiency of care** is a measure of cost of care associated with a specified level of quality of care. "Efficiency of care" is a measure of the relationship of the cost of care associated with a specific level of performance measured with respect to the other five IOM aims of quality.
- **Value of care** is a measure of a specified stakeholder's (such as an individual patient's, consumer organization's, payor's, provider's, government's, or society's) preference-weighted assessment of a particular combination of quality and cost of care performance.

Purpose of the Healthcare Delivery System

The purpose of the healthcare delivery system is to improve health, reduce the burden of illness, and maximize the value of individual and societal resources allocated to healthcare and is fundamentally rooted in the needs of the patient, and, more broadly, society. An effective measurement framework should contribute to that purpose by supporting judgments about the degree to which the healthcare delivery system and its component parts contribute to achieving this purpose.

Theoretical Construct: Episodes of Care Approach

An episode of care is defined as "a series of temporally contiguous healthcare services related to the treatment of a given spell of illness or provided in response to a specific request by the patient or other relevant entity."⁵ The Committee developed a generic episode of care model, which can be used to track the core components—population at risk, evaluation and initial management, and follow-up care—that must be measured and evaluated over the course of an episode of care. These components are foundational to any assessment of efficiency. This model is adaptable to multiple types of episodes, and the construct is designed to be applied to a broad set of health conditions; this report has applied it to two different types of conditions—acute myocardial infarction and low back pain—to allow for examination of an acute condition and transition between providers and settings, as well as a chronic, preference-sensitive



condition in which shared decision making plays a significant role. Subsequent work has been completed on breast and colorectal cancers, diabetes, and substance use illness.⁶

Domains for Performance Measurement

The following domains represent the essential components and subcomponents for measuring efficiency as it relates to an episode of care.

■ Health outcomes important to patients

- Health status/health-related quality of life
- Patient experience with care

■ Cost and resource use

■ Processes of care

Guiding Principles

The following principles are intended to guide development and implementation of the measurement framework as applied across episodes of care.

1. Efficiency measurement is multidimensional.
2. The choice of measures to inform judgments on efficiency should include consideration of potential leverage.

3. Measures used to inform judgments on efficiency should promote shared accountability across providers and should be assigned to the smallest unit of accountability as technically feasible.
4. Measures used to inform judgments on efficiency should respond to the need to harmonize measurement across settings of care.
5. Measures to inform judgments on efficiency should be used for benchmarking.
6. Public reporting of measures of efficiency should be meaningful and understandable to consumers and entities accountable for their care.
7. Inappropriate care cannot be efficient.
8. The measurement framework should achieve its intended purpose and should be monitored for unintended consequences.
9. Measures to inform judgments on efficiency should be an integral part of a continuous learning system.

Notes

- 1 The Commonwealth Fund, *Mirror, Mirror on the Wall: An International Update on the Comparative Performance of American Healthcare*. New York: The Commonwealth Fund; 2007. Available at www.commonwealthfund.org/usr_doc/1027_Davis_mirror_mirror_international_update_final.pdf. Last accessed January 2009, p. 1.
- 2 Ibid.
- 3 Institute of Medicine. *Performance Measurement: Accelerating Improvement*. Washington, DC: National Academies Press; 2006.
- 4 These terms are adopted from AQA *Principles of Efficiency Measures*. Available at www.aqaalliance.org/files/PrinciplesofEfficiencyMeasurementApril2006.doc. Last accessed January 2009.
- 5 Hornbrook MC, Hurtado AV, Johnson RE, Health care episodes: definition, measurement and use, *Med Care Rev*, 1985;42(2):163-218, p. 171.
- 6 Additional information on subsequent work completed can be found at www.qualityforum.org/Projects/Episodes_of_Care_Framework.aspx.

Measurement Framework: Evaluating Efficiency Across Patient-Focused Episodes of Care

Introduction and Overview

Statement of the Problem

Most Americans will not be able to afford healthcare if expenditures for healthcare services continue to grow at their current pace. A recent survey of U.S. adults found that 50 percent of middle- and lower-income families reported serious problems paying for care, and an equal proportion are worried about the affordability of healthcare for themselves and their families in the near future.¹ Although per capita spending on healthcare in the United States is more than double that of other industrialized nations, the United States ranks poorly compared with other countries on key indicators of the quality of medical care and the health status of the population.² For example, in a comparative study of the United States and five other industrialized nations, the United States ranked last in safe care and had the highest infant mortality rates.³ In light of these findings, it is not surprising that 42 percent of adults in this country report experiencing inefficient, poorly coordinated, or unsafe care over the past two years.⁴

Inefficiency and waste are pervasive. Patients often receive duplicate tests or do not have their medical records available when they visit a doctor. More money is spent in the United States on administrative functions related to insurance than in other countries—7.3 percent of national expenditures on health. If the United States were in-line with other countries who have mixed private-public insurance systems, it is estimated that \$32 to \$46 billion a year could be saved.⁵ Clearly, Americans deserve better value for their healthcare dollars.

Widespread variation in spending also occurs across the country. This variation often is unrelated (or, at times, is inversely related) to the quality of care. For example, Medicare beneficiaries in higher-spending regions of the United States do not experience higher quality of care than those in lower-spending regions. In some cases the quality of care is worse, as indicated by health outcomes and patient satisfaction. Differences in spending appear to be due to differences in physician practice patterns that are driven in part by the greater per-capita supply of hospitals and specialists: Patients in higher-spending regions are much more likely to be treated as inpatients and by multiple specialists compared with similar patients in lower-spending regions—and they receive more tests, imaging services, and minor procedures.⁶

However, there are reasons for optimism. Performance measurement is widely accepted as essential to improvement—by identifying opportunities for improvement, motivating providers to improve, and providing the basis for aligning incentives with better performance—and substantial progress has been made recently in the development and implementation of reliable measures. Promising examples exist across the country, in which organizations are improving the quality of care while shedding waste and controlling costs (see Appendix A). Finally, there is a growing recognition that the potential savings from reducing waste and improving efficiency are substantial—with an estimated 30 percent of U.S. healthcare spending devoted to services that provide no health benefit.⁷

Still, although significant resources are being invested in the development of performance measures by many organizations, current efforts are poorly coordinated and often fail to focus on high-leverage areas that have the greatest potential to improve quality and control costs. These efforts are thus unlikely to lead to fundamental change in the healthcare delivery system.⁸ Notwithstanding certain exceptions, widespread adoption and diffusion of best practices have been slow to occur.

Multiple stakeholders must align in order to accelerate improvement by:

- **creating a road map for healthcare quality improvement** that includes priorities and performance improvement goals to unify and build upon existing efforts, and set a more deliberate course of action for the nation;
- **developing a workable and effective framework for evaluating the efficiency of care** over time, including clear definitions of terms and a shared vision of what can be achieved around quality, cost, and value that promotes better care coordination and a sense of shared accountability among the multiple providers involved in a patient's care;
- **developing performance measures and efficient data collection and reporting strategies** that will inform our efforts to improve key areas such as enhancing care coordination, aligning care with patients' preferences, and controlling the cost of care; and
- **creating an integrated national, regional, and local leadership model** that will guide and enable efforts to drive care improvement.

Strategic Direction

To create a road map for healthcare quality improvement, the National Quality Forum (NQF) convened the National Priorities Partnership (NPP), a collaborative effort of 32 major national organizations (Partners) that collectively influence every part of the healthcare system. The Partners have identified a set of National Priorities and Goals for national action that aggressively targets eliminating harm, eradicating disparities, reducing disease burden, and removing waste from the healthcare system.⁹ The Partners also have agreed to work collaboratively and with policymakers, healthcare leaders, and other stakeholders to develop action plans around the Priorities and to align the drivers of change (e.g., payment reform, performance measurement, and accreditation and certification) around common goals.¹⁰

To develop a workable and effective framework for evaluating the efficiency of care over time,

NQF sought to develop a comprehensive measurement framework in order to evaluate efficiency, and ultimately value, across patient-focused episodes of care—that is, the care of people over the course of an episode of illness. As with other projects, NQF convened a multistakeholder Steering Committee (Appendix B) to shepherd this work.

In an attempt to operationalize the measurement framework, the Committee targeted two very different types of conditions—acute myocardial infarction and low back pain—to determine the applicability of the framework to these conditions, thus making the framework more likely to be generalizable.

The formative work of this Committee and the ongoing work of NPP cumulatively hope to lead to the **development of performance measures and efficient data collection and reporting strategies** and to the encouragement of the **creation of an integrated national, regional, and local leadership model** that will guide and enable efforts to drive care improvement. These efforts will require ongoing engagement of the many stakeholder groups that already have advanced performance measurement. Ultimately, these efforts will facilitate better alignment of measurement development and reporting activities with the National Priorities and Goals; address gaps in the quality measurement agenda; and begin to define longitudinal performance metrics of patient-level outcomes, resource use, and key processes of care. Furthermore, these efforts aim to simplify the measurement process

so that it can motivate and support healthcare professionals, provider organizations, patients, and communities to ensure that patients receive the most efficient, high-quality healthcare possible.

The framework contained in this document proposes a patient-centered approach to measurement that focuses on patient-level outcomes over time—soliciting feedback on patient and family experiences; assessing functional status and quality of life; ensuring treatment options are aligned with informed patient preferences; and using resources wisely. It will require fundamental change in the healthcare delivery system.

The framework presented here is viewed as a living document that will continue to evolve as we learn more about how to best address individuals with complex chronic illnesses and better integrate public health and personal health systems. Nonetheless, this framework provides a starting point for identifying measurement gaps and for examining models of shared accountability to help move us closer toward attaining a high-performing, high-value healthcare system.

Measurement Framework: Evaluating Efficiency Across Patient-Focused Episodes of Care

Focus of this Report

IN THIS REPORT, the groundwork is laid for a measurement framework that evaluates efficiency, and ultimately value, across patient-focused episodes of care. This framework will help key stakeholders move toward a high-performing healthcare system that is patient-centered, focused on quality, mindful of costs, and vigilant against waste.

Measurement Framework

The Committee's recommended measurement framework is presented below. First, key terms are defined to establish a common understanding of what is meant by "efficiency" and related constructs (such as quality and cost). Next, the purpose of the healthcare delivery system and the role that performance measurement should play in achieving that purpose are clarified. The definitions and the purpose provide the foundation for the Committee's decision to emphasize the importance of focusing on health outcomes and total costs over episodes of care when measuring performance. The advantages and disadvantages of the episode of care approach to performance measurement are provided, and a model of a generic episode of care is explained. Finally, the recommended domains for performance measurement and a set of principles to guide future work are presented.

Key Terms and Definitions

The Committee recognized the importance of agreeing upon a common vocabulary around efficiency measurement, and it capitalized on the many efforts already underway in the field. The Committee looked to the work of the AQA, which had already come to consensus on straightforward definitions for the constructs that are inherent to measuring and evaluating efficiency, and which gained approval from the AQA membership.¹¹ The Committee agreed with AQA's approach, and it recommended the adoption of the definitions in Box 1 as a means to promote a common understanding among the many stakeholders committed to this work and to better align existing and future undertakings in this area. Appendix C discusses these terms in greater detail and provides a "real-life" example of how they can be applied.

Box 1—Key Terms and Definitions

The four terms and accompanying definitions presented below are distinct but interrelated constructs. The Committee recommended that measurement within these constructs not be pursued individually or in isolation, but rather as an essential subcomponent of a larger set of measures needed to adequately assess efficiency overall.

- *Quality of care* is a measure of performance on the six Institute of Medicine (IOM) specified healthcare aims: safety, timeliness, effectiveness, efficiency, equity, and patient-centeredness.
- *Cost of care* is a measure of the total healthcare spending, including total resource use and unit price(s), by payor or consumer, for a healthcare service or group of healthcare services, associated with a specified patient population, time period, and unit(s) of clinical accountability.
- *Efficiency of care* is a measure of cost of care associated with a specified level of quality of care. “Efficiency of care” is a measure of the relationship of the cost of care associated with a specific level of performance measured with respect to the other five IOM aims of quality.
- *Value of care* is a measure of a specified stakeholder’s (such as an individual patient’s, consumer organization’s, payor’s, provider’s, government’s, or society’s) preference-weighted assessment of a particular combination of quality and cost of care performance.

Purpose of the Healthcare Delivery System and Supporting Role of the Performance Measurement System

Ultimately, a measurement framework will be deemed successful to the degree that it contributes to the success of the healthcare delivery system at achieving its purpose. Drawing on earlier work by the Institute of Medicine (IOM)¹² and others, the Committee concluded that the purpose of the healthcare delivery system is rooted fundamentally in the needs of the patient, and more broadly, society. The purpose of the healthcare delivery system is

to improve health, reduce the burden of illness, and maximize the value of individual and societal resources allocated to healthcare.

Accordingly, the measurement framework should support judgments about the degree to which the healthcare delivery system and its component parts (e.g., providers, health plans, payers, and government agencies) contribute to achieving this purpose. Even more importantly, a performance measurement system should both motivate and support continual improvement in the healthcare delivery system and its demonstrated capacity to achieve the goal of improving health and reducing both the cost and burden of illness.

The Committee recognized that having a clear purpose will not eliminate disagreements or the need to make difficult decisions. Different stakeholders will have different perspectives on efficiency. For example, a patient may consider being seen for an appointment in a timely manner as a relevant barometer of efficiency, considering the opportunity costs of running late (e.g., missed wages), whereas a provider may consider it more efficient to overbook patients to ensure that all appointments are filled and the practice sustained. However, the Committee concluded that its work should proceed primarily from the patient's perspective, which offers a clear path toward redesigning payment and care models to reduce the burden of illness, while eliminating waste and maximizing value. A more difficult set of issues involves decisions about how to best allocate resources to the healthcare system itself (compared to other societal investments) and among the potential competing priorities within healthcare. In this case as well, however, judgments and prioritization will be fairer and better aligned with the purpose of the healthcare system to the extent that they can be based on reliable information about the impact of different clinical interventions and approaches to care delivery on patients' and populations' health, the burden of illness, and the overall costs and value to patients of the alternative approaches to providing care.¹³

Episodes of Care

Rationale for using episodes of care to characterize performance

A measurement framework that can inform stakeholders' judgments of the degree to which

the delivery system is improving health and reducing the burden of illness, at an appropriate level of investment, should parallel the natural trajectory of the clinical conditions (i.e., injuries, diseases, and disabilities) to be assessed.¹⁴ Therefore, the Committee found the theoretical construct of an episode of care as a useful approach to characterizing performance. Specifically, an episode of care is defined as

a series of temporally contiguous healthcare services related to the treatment of a given spell of illness or provided in response to a specific request by the patient or other relevant entity (p. 171).¹⁵

The Committee concluded that an episode perspective is required to determine if the delivery system is indeed achieving its intended purpose, because this approach allows for care to be analyzed over time and offers a better assessment of the patient's resultant health status.

Types of Episodes of Care

An episode of care may be acute, such as a fractured arm (for which onset is easily defined and the period of recovery is relatively predictable), or more chronic, such as diabetes (for which onset is gradual, treatment requires ongoing efforts, and the goals are to prevent disease progression and to minimize complications over a prolonged period of time). A single episode may also include both acute and chronic care. In the case of heart attacks, for example, the initial management requires effective coordination of acute care resources (e.g., emergency services, hospital emergency rooms, multiple healthcare professionals, cardiac catheterization suites, and intensive care units). However, maximal recovery

requires marshalling post-acute care services (e.g., rehabilitation) and implementing effective, secondary strategies (e.g., smoking cessation counseling, lipid-lowering medications) to prevent further progression of disease and perhaps another heart attack. These examples underscore the need to pay careful attention to the varying durations of different healthcare episodes and to the important contributions of multiple healthcare professionals (e.g., nurses, pharmacists, allied health professionals, physicians, and others) to the delivery of high-quality care.

Advantages of an Episode of Care Approach

The Committee identified several advantages to using the episode of care approach to assess performance. First and foremost, this approach offers a more patient-centered way to evaluate health system performance, and it may, therefore, help to address many of the gaps in our current performance measurement system that were identified by the IOM¹⁶ and others. Because the natural trajectory of many episodes extends over a long time period (e.g., one year), evaluation can provide insight into how effectively services are coordinated across multiple settings and during critical transition points, such as discharge from the hospital to the nursing home, where the evidence shows that errors and miscommunications are likely to occur.^{17,18} A longitudinal, episode-based approach contrasts sharply with current approaches to performance assessment, which usually focus on a specific setting or provider (e.g., hospital or nursing home) and on a single point in time. A longitudinal approach to measurement can help to shift the focus away from how individual providers act to how

multiple providers can more effectively work together to improve the quality, cost, and outcomes of care. The IOM called for measurement approaches that foster shared accountability—where all members of the team are held accountable for high-quality care and for the “warranty” many are calling on the delivery system to provide to patients.¹⁹

Second, the Committee considered the episode of care approach to be a way to shift performance measurement toward assessments that allow judgments to be made about value—by providing measures of quality, cost of care, and outcomes that can only be interpreted in light of concordance with patients’ well-informed preferences. While they may serve as indicators of over-utilization if appropriately benchmarked, traditional measures of resource use that focus on the volume of services received by a defined population (e.g., practitioner office visits, hospital admissions, and surgical procedures) provide an incomplete picture of how medical services relate to one another, and they provide no insight into the relationship between the delivery of service(s) and the outcome achieved once the decision to provide particular treatment(s) has been made. Conversely, if the episode of care is the unit of analysis, the entire set of interrelated services involved in the delivery of medical care to treat a specific problem over time can be captured, as well as the results achieved through the delivery of those services. Therefore, focusing on episodes of care allows for a more direct assessment of the linkage between the provision of specific services (and their costs) and the outcomes of those services.

Third, it was believed that episodes can foster and enable new strategies for financing

healthcare that may eliminate current incentives to overuse certain services (e.g., imaging for low back pain) and underuse others (e.g., preventive care such as colon cancer screening). An episode approach can also facilitate the development of alternate payment models that compensate processes of care that have been shown to contribute to better patient outcomes (e.g., patient self-management support and medication reconciliation),^{20,21} as well as equitably reward all healthcare professionals who deliver care across the episode.

Finally, at least in theory, an episode approach based on prolonged episodes (one year or more) can provide more generalizable insights into the overall performance of delivery systems. Patients with diabetes, heart attacks, cancer, depression, or other serious chronic conditions will tend to experience other acute or chronic conditions during their period of follow-up. Whether the outcomes and cost of care over time for different conditions are highly correlated will thus be an important empirical question. If overall performance on one condition predicts longitudinal performance on another, then a measurement framework that focuses on important, high-prevalence “tracer” conditions might be generalized to provide meaningful comparisons across delivery systems, communities, and regions.

Limitations of an Episode of Care Approach

Despite the advantages enumerated above, the Committee recognized the limitations associated with evaluating efficiency across episodes. These stem mainly from challenges entailed in: 1) addressing appropriateness of care; 2) risk-adjusting for different populations; 3) sorting

out patients with multiple chronic conditions; and 4) facilitating comparisons among organizations.

Determining the appropriateness of care is critical from two standpoints. First, it is important to ensure that patients receive evidence-based interventions for which they are eligible (even if they cost more). For example, screening for breast or colorectal cancer may incur some early costs, but the potential benefits from early intervention with regard to patient outcomes and cost savings are often not realized until years downstream. Conversely, it would be wrong to label a provider as “efficient” for performing a procedure at low cost and with a good outcome if the procedure should not have been performed in the first place—either because it was not clinically indicated or, if clinically indicated, the patient would not have chosen to receive it (based on personal values) if fully informed of the risks and benefits. An example of the latter would include many instances of surgery for low back pain.

A recent analysis by the Medicare Advisory Payment Commission (MedPAC) of two episode grouper tools provides an example of the challenges inherent in measuring efficiency with current commercial measures. MedPAC found that Miami, Florida, appeared to be more efficient than Minneapolis, Minnesota, in terms of relative resource use per episode for coronary artery disease (CAD).²² However, upon further investigation it was discovered that Medicare beneficiaries in Miami were diagnosed and treated much more frequently for CAD and other heart-related episodes than those in Minneapolis. Thus, Miami’s CAD expenditures alone were spread across more

episodes, giving the appearance of lower costs and greater provider efficiency but masking the possibility of overdiagnosis and overtreatment.

An important lesson from the examples above is that episode groupers do not necessarily distinguish the appropriateness of clinical services and patient preferences for the clinical services rendered, and therefore efficiency measurement based purely on episodes must be balanced with population-based, per capita resource use measures.²³ Other options would be to measure the number of episodes per capita of a given type of service or to measure the degree to which care is aligned with well-informed patients' preferences.

Two other limitations also deserve mention. One is that episodes of care traditionally have been constructed on a condition-by-condition basis. This is not a patient-centric approach, because the majority of patients cope with more than one chronic condition. Therefore, capturing quality and cost of care for patients that account for multiple comorbidities and thus overlapping episodes is a methodological challenge that still needs to be resolved in order to create a patient-centric measurement framework. Another limitation is that the episode of care strategy does not facilitate comparisons of relative efficiencies of one organization versus another—efficiencies that may indeed transcend diseases. This limitation emphasizes the need for at least some institution-specific or site-specific measurement to support quality improvement and patient choice.

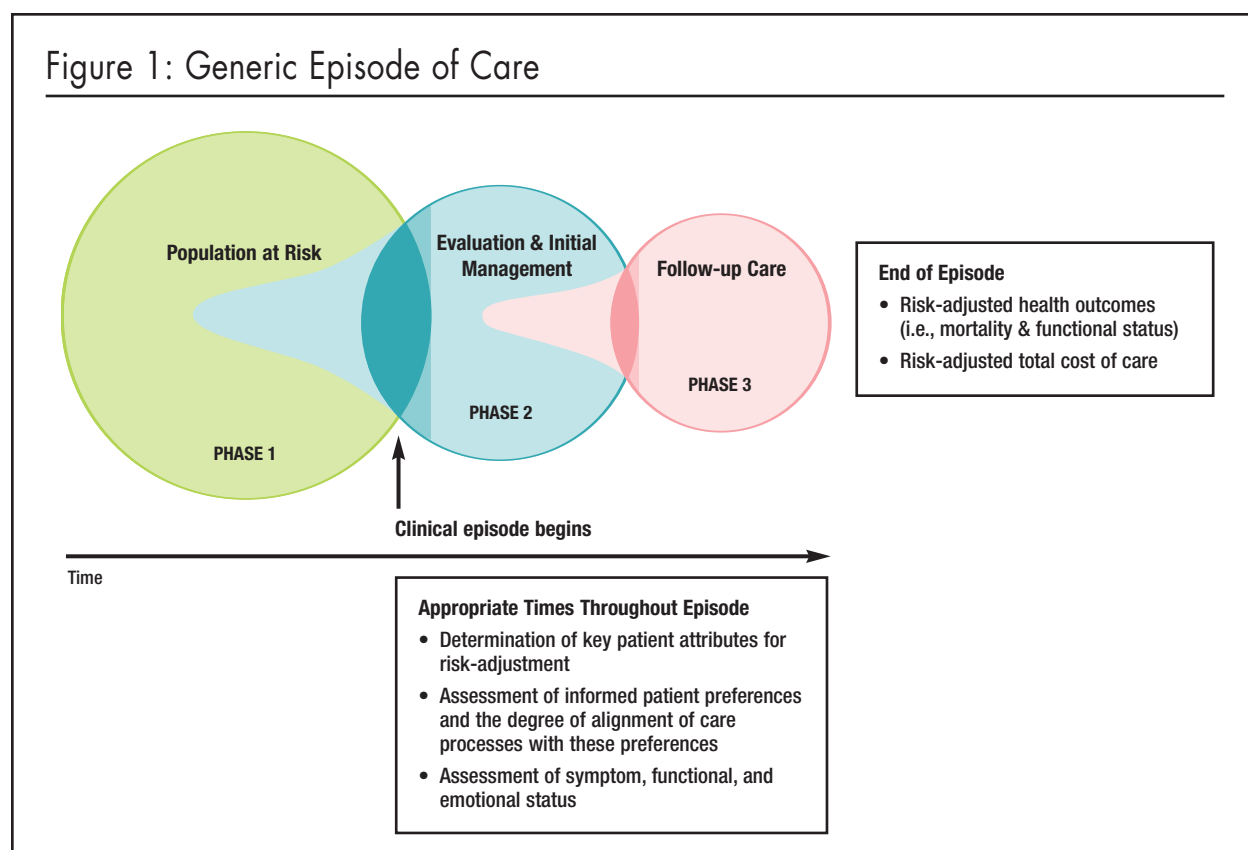
The limitations of an episode of care approach clearly point to the need for a comprehensive measurement system that not

only can accurately and reliably assess the efficiency of care delivered but also can monitor for appropriateness of care; account for patient preferences; address diverse populations and those with multiple chronic conditions; and allow for meaningful comparisons across organizations to support quality improvement and patient values. Indeed, one of the major obstacles to adopting an episode of care model is the translation of theory into practice—as the Committee recommends the ability to measure outcomes not only in the short term (e.g., 30-day mortality) but also over extended intervals (e.g., initially at one year, and then three to five years and beyond), which has yet to be successfully mastered on a wide scale basis.

The following discussion presents the Committee's conceptualization of an episode of care model that can be applied broadly to acute and chronic conditions. This generic episode follows a patient through the experience of care, followed by discussion of the specific domains of measurement proposed by the Committee.

Generic Episode of Care

Figure 1 illustrates a generic model for tracking a patient with a health problem and for measuring and evaluating the core components, or phases, of the episode of care. This model is adaptable to multiple types of episodes, and it provides a foundation for working out case scenarios. It incorporates the measurement domains—patient-level outcomes, cost and resource use, and processes of care—that are essential for evaluating the efficiency of care, while recognizing that judgments of value



require an understanding of patient preferences—thus highlighting the importance of actively engaging patients in their healthcare decisions. Appendices D and E discuss the application of this model to two common conditions, acute myocardial infarction (AMI) and low back pain, respectively.

Because a growing body of evidence alerts us to the potentially harmful, unintended consequences of measurement approaches that focus too narrowly on guideline adherence for individuals with multiple chronic conditions,^{24,25} this model should be viewed as the first stage of an evolutionary strategy that will be informed by emerging evidence. The complexity of illness, the clustering of illnesses (e.g., a diabetic

patient with heart disease, back pain, and depression), and other health risks (e.g., risk for falls, delirium, or pressure ulcers) will require over time a more sophisticated model that allows for the measurement of how well clinical services are aligned with patient needs, preferences, and social supports.

The generic model for evaluating the efficiency of care over time consists of three phases: 1) population at risk, 2) evaluation and initial management, and 3) follow-up care. These three phases are considered foundational to any assessment of efficiency regardless of the type of health problem presented—acute, chronic, or a combination thereof.

Phase 1: Population at Risk

The Committee acknowledged that primary prevention of a health problem, both in a generic sense for this model and more specifically for an acute condition with long-term chronic implications such as heart attack, is the most efficient approach to care—from the patient’s perspective and with respect to societal resources. Thus, the Committee believed that a strategy for evaluating health promotion and primary prevention may require sampling from a population of patients other than those who have started in the clinical phase of the episode of care.

Phase 2: Evaluation and Initial Management

This phase begins at the onset of clinical illness, and it should include an initial assessment of an informed patient’s preferences with regard to the available treatment options and, if warranted, palliative care. An assessment of the key, evidence-based processes of care and a determination of how well the processes align with the patient’s preferences should occur at appropriate times during this phase. For some more complex episodes, it may be informative to ascertain relevant measures such as quality of life, functional status, morbidity/ mortality, patient experiences with care, and costs.

Phase 3: Follow-Up Care

Measurement during this phase should focus on seamless care coordination, targeting care transitions and medication reconciliation, particularly during hand-offs between providers and across different settings. Initiation of appropriate secondary prevention also figures prominently in this phase. Patient preferences

should continue to inform which processes of care are executed. Ongoing evaluation of relevant patient outcomes may be appropriate.

Assessment at the End of the Episode of Care

At the end of the episode of care—the length of which will vary depending on the type of health problem—two key outcomes should be assessed: 1) patient-level outcomes and 2) overall resource use. Patient-level outcomes ideally should include risk-adjusted morbidity and mortality and domains that encompass health-related quality-of-life measures such as patient self-reported functional status. Resource use comprises the risk-adjusted total cost of care across the entire episode. Risk adjustment should use a well-tested and validated statistical model to account for the key patient demographic and clinical factors that affect outcomes. The Committee recommended that for chronic conditions the initial standard should be to evaluate patient-level outcomes and total cost of care at one year, and, when feasible, at three to five years or beyond.

Domains

The following domains represent the essential components and subcomponents for measuring efficiency as it relates to an episode of care. All of these domains are important, because there is a need for a complement of measures that will pull providers together across the full trajectory of a particular episode, which will vary. A focus on longitudinal efficiency implies overall assessment of both quality and cost. Clear insights will require measuring the key components needed by stakeholders so they can judge quality, cost, and value.

In selecting the domains, the Committee strove for balance—hoping to ensure that they were comprehensive enough to accurately and fairly evaluate performance both at the system and provider level without imposing an undue burden for data collection. In keeping with the original statement of purpose, it was also critical that the domains capture patient-level outcomes and that they be capable of detecting waste in the system or of exposing unjustifiable costs. Therefore, the Committee recommended three overarching domains—patient-level outcomes, cost and resource use, and processes of care—for assessing efficiency, and ultimately value, across healthcare episodes.

Domain 1: Patient-Level Outcomes

Drawing on the earlier work of Donabedian, the Committee recognized the utility of understanding measurement in terms of the classical structure-process-outcome triad.²⁶ The Committee also acknowledged that the current repertoire of performance measures consists predominately of process measures (e.g., administration of aspirin after AMI); far fewer structural measures (e.g., nurse staffing levels); and only a sprinkling of outcome measures (e.g., 30-day mortality for AMI). Nonetheless, the Committee advocated for collecting and reporting patient-level outcome measures, and it viewed doing so as an essential component of any efficiency assessment—whether at the overall healthcare system level or at the individual provider level. Hence, there is an urgent need for additional outcome measures to be developed, tested, and more fully implemented. In the meantime, the selection of existing process/structure measures for purposes of accountability and quality improvement should

be guided by an evidence base that sufficiently links the measures to desirable patient outcomes and that results in as parsimonious a set of measures as possible to ensure adequate breadth and high compliance.

Health Status/Health-Related Quality of Life

In addition to evaluating outcomes such as morbidity and mortality for a particular condition or treatment intervention, other important constructs to be measured in this domain include patient self-perception of health status, functional status, and physical and psychological health. These variables represent key dimensions of health-related quality of life (HRQoL), which is a more relevant and appropriate construct for chronically ill populations because of its focus on the aspects of an individual's overall well-being that are affected by progressive changes in health status and the quality of healthcare. The ability to cope with functional deficits and views about the meaning of one's life is prominent among the factors that can significantly affect an individual's perceptions of health status and quality of life. These perceptions also can be influenced by the quality of healthcare services.^{27,28,29} HRQoL is consistent with the current emphasis on "person-centered care" (healthcare responsive to the person's wants, needs, and preferences), a principle stressed in recent IOM reports on quality.³⁰ Data on the multiple domains of HRQoL can inform decisions about the use of innovative clinical practices or technologies for this population. Recent studies have demonstrated the significance of HRQoL measures in selecting among alternative interventions and in guiding decisionmaking when there is a real tradeoff

between length and quality of life.³¹ Many standardized survey instruments have been developed to measure these dimensions of outcome.³²

Patient Experience with Care

Patient experience with care over an episode-based encounter is an equally important outcome for determining the overall efficiency of care delivery. Therefore, feedback should be solicited from patients and their families in a formal and systematic fashion and then acted upon. One such mechanism for doing so is the administration of a survey tool such as the CAHPS® family of instruments.³³

Domain 2: Cost and Resource Use

The most important measure of resource use would be one that captures the total cost of care across the episode—both the quantity of services provided to patients and the true costs paid for each service. Because prices paid for identical services can vary across geographic areas and among payers, and because individual providers may not have control over all prices, measures of overall resource use based on both the actual prices paid and standardized prices are important. Other measures that can help provide insight into differences in resource use include the volume of services, such as the quantity of physician visits and the number of hospital or nursing home days provided to patients during the episode. Another measure of resource whose usefulness is supported by a growing evidence base are nursing intensity weights, which are relative values that reflect the quantity and types of nursing services provided to patients in each

diagnosis-related group.³⁴ It is also important to consider opportunity costs to patients resulting from inefficiencies in the healthcare system (e.g., time wasted waiting for an appointment) as well as out-of-pocket costs for care.

Domain 3: Processes of Care

This domain includes measures of process, such as administration of an evidence-based bundle of appropriate medications at admission and discharge for patients who have had a heart attack. To minimize the data collection burden, process measures should be strongly linked to desired intermediate and final outcomes.

Also within this domain is the important process of engaging patients proactively in shared decisionmaking. This collaborative process between patients and their providers is specifically designed to assist them in making informed choices—aligned with their preferences and values—regarding potential treatment options. Measuring decision quality becomes particularly relevant in determining the appropriateness of care, as discussed earlier, because many patients when given balanced information will choose not to have a given procedure or diagnostic test, even if they meet eligibility and appropriateness requirements.³⁵

Guiding Principles

The following principles are intended to guide the development and implementation of the Committee's recommended measurement framework as applied across episodes of care.

Principle 1: Efficiency measurement is multidimensional.

Judgments about efficiency should be based on a comprehensive set of measures that adequately portray performance in three domains: patient-level outcomes, cost and resource use, and processes of care. Explicitly, these domains should drive toward outcomes relevant to all the IOM aims for the healthcare system in addition to efficiency including safety, timeliness, effectiveness, equity, and patient-centeredness. Therefore, efficiency measurement is by definition multidimensional and as such should be evaluated accordingly.

Principle 2: The choice of measures to inform judgments on efficiency should include consideration of potential leverage.

When choosing among potential measures, consideration should be given to those that have the highest likelihood of positively influencing desirable patient outcomes at reasonable costs and that offer the greatest opportunity to spur system-level improvement. Process measures should have strong evidence of their link to outcomes.

Principle 3: Measures used to inform judgments on efficiency should promote shared accountability across providers and should be assigned to the smallest unit of accountability as technically feasible.

To promote shared accountability for patient outcomes and total costs across episodes, the framework for efficiency measurement should address all levels within the healthcare system, including individual patients, independent healthcare professionals, provider organizations, and communities. When feasible, and when data can support measures that are valid, accurate, and reliable, the smallest unit

of accountability should be measured and reported.

Principle 4: Measures used to inform judgments on efficiency should respond to the need to harmonize measurement across settings of care.

For existing measures, efforts should be made to reconcile measurement specifications/definitions among healthcare professionals (e.g., physicians, nurses) and across multiple settings (e.g., ambulatory, hospital, nursing home, home health, community, populations). The development of new measures should strive for harmonization and should include measures that cross settings of care.

Principle 5: Measures to inform judgments on efficiency should be used for benchmarking.

When assessing efficiency of care either at the individual healthcare professional, provider organization, or system level, performance should be compared to, or indexed against, an appropriate benchmark. Whenever possible, benchmarks should reflect the current assessment of best attainable care (based on both quality and cost)—not simply average performance—and should be tracked over time.

Principle 6: Public reporting of measures of efficiency should be meaningful and understandable to consumers and entities accountable for their care.

Publicly reported data on efficiency—quality and cost of care—should be meaningful and useful to consumers, accountable care entities being measured, and other relevant stakeholders. Data should be presented in a format that is understandable to consumers and other end users so they can easily make informed judgments about both providers and treatments.

Principle 7: Inappropriate care cannot be efficient.

Measures to inform judgments on efficiency should be capable of detecting misuse, overuse, and underuse of care within the episode time-frame. Inappropriate care, including failing to provide an evidence-based intervention to an eligible patient or administering an intervention that is unwarranted, cannot be efficient.

Principle 8: The measurement framework should achieve its intended purpose and should be monitored for unintended consequences.

A measurement framework that is designed to inform judgments on efficiency should facilitate improving health and reducing the cost and burden of illness. As such, the framework should be periodically (every three to five years) evaluated to ensure its effectiveness, and it should be continuously monitored to safeguard against unintended consequences.

Principle 9: Measures to inform judgments on efficiency should be an integral part of a continuous learning system.

In addition to assessing individual healthcare professionals, provider organizations, and system performance, efficiency measurement also should be designed for continuous learning to inform clinical practice, measure development, policy, and the research agenda.

Path Toward a Comprehensive Measurement System

Many stakeholder groups have spent a considerable amount of time identifying the best available measures, and they have engaged in substantial and well-intentioned efforts to collect the data needed to populate the databases for these measures and to generate public reports on clinical aspects of the quality of care and, in some instances, patient perspectives on care. Until recently, with the exception of a handful of innovators in the field, too few attempts have been made to define and measure efficiency in ways that combine measures of resource use with measures of other important dimensions of quality including safety, timeliness, effectiveness, equity, and patient-centeredness. The work of this Committee is meant to help advance the field by highlighting the need for a measurement framework that recognizes the longitudinal nature of health-care (i.e., episodes of care) and places emphasis on both quality and cost.

The Committee recognized that there are many hurdles to measuring efficiency across extended episodes of care. First, a more comprehensive measurement system needs to evolve—one that is capable of assessing the clinical efficiency of care as well as monitoring for unintended consequences, supporting continuous quality improvement, adequately adjusting for risk, and determining the appropriateness of care. However, the lack of such an ideal system should not prevent us from moving forward. Rather, the framework can

serve as a blueprint for what we are trying to achieve. The Committee recognized that achieving the goal of a comprehensive measurement system will require adopting a phased approach to implementation.

Second, the Committee recognized that many technical issues will need to be resolved including:

- how to ensure data integrity;
- how data should be aggregated and at what level (i.e., national versus local);
- how best to adjust for varying case/severity mix among different providers;
- how to attribute care across multiple providers; and
- how to develop new measures to fill gaps in the episode of care framework.

Third, the Committee realized that changing performance measurement to a patient-focused, episode of care approach, as described, will be difficult, particularly because current accountability and payment systems tend to focus on individual providers and distinct settings of care.

Although a full discussion of these issues is beyond the scope of this report, the Committee discussed these and other challenges, and it also held a workshop to solicit input on these issues from additional content experts in the field. Based on these discussions, the Committee agreed that the path toward implementation will require efforts to integrate and coordinate local providers and their data, and it will necessitate the development of practical approaches to support the collaborative and integrative work required to improve care across episodes that span multiple providers

and diverse settings of care. To achieve these goals an organizational context for the work must be established. The Committee believed that this is likely to require the fostering of shared accountability through the development of “accountable care entities” to provide (or effectively manage) the continuum of care as a real or virtually integrated local delivery system. The Committee recommended that such an organizational structure have the following characteristics:

- organizational commitment to patient-centered focus for measurement including routinely collecting and acting upon patient and family caregiver feedback;
- strong organizational structure with a locus of accountability with clear authority, and a receptive environment with financial incentives, collaboration, and communication within and across providers and settings of care;
- information management systems that include seamless information exchange across providers and settings; and
- learning systems with a quality improvement infrastructure that can engage providers and drive improvement with mechanisms for innovation and learning within and across organizations.

This organizational structure could take many forms. For example, it could be an existing integrated delivery system such as the Geisinger Health System, described in Appendix A. Other alternative structures might include multispecialty group practices, physician-hospital organizations/practice networks, regional collaboratives, or health plans serving as the locus of accountability for a network of providers, or conceivably an

“advanced medical home” with a designated health professional playing a coordinating role for his or her patients.³⁶ All of these potential structures have strengths and weaknesses and undoubtedly would face formidable barriers in current markets, but the Committee believed that some level of organizational accountability will almost certainly be required and that learning which organizational forms are most successful (in what contexts) will require both pilot testing and careful evaluation of alternative approaches.

In closing, the measurement framework presented here is viewed as a living document that will continue to evolve as we learn more

about how to adapt this model to individuals with complex chronic illnesses, including frail elders, and to population-based approaches. The Committee recognized that there are many other determinants of health that necessitate better integration between the public health and personal health systems, as well as compounding issues around access and disparities, that warrant further work on fully incorporating these areas into a farther-reaching performance measurement system. Nonetheless, this framework provides a starting point for identifying measurement gaps and for examining models of shared accountability to help move us closer to attaining a high-performing, high-value healthcare system.

Measurement Framework: Evaluating Efficiency Across Patient-Focused Episodes of Care

Appendix A Case Studies

The 100,000 Lives Campaign

THE 100,000 LIVES CAMPAIGN—spearheaded by the Institute for Healthcare Improvement—engaged more than 3,000 hospitals in an 18-month project during which an estimated 122,000 deaths were avoided by improving the quality and efficiency of care. Healthcare organizations were encouraged to implement up to six interventions including 1) deploying rapid response teams in inpatient settings at the first sign of patient decline; 2) delivering a core, evidence-based bundle of clinical services to patients who experienced a heart attack; 3) reconciling medications throughout care to avert adverse drug events; 4) preventing central line infections; 5) preventing surgical site infections; and 6) preventing ventilator-associated pneumonia (VAP).³⁷

Virginia Mason Medical Center (VMMC) employs tenets derived from Toyota’s “Lean Production System,” which maps out processes of care in step-by-step detail to look for opportunities to eliminate waste. VMMC chose the reduction of the incidence of VAP and its related complications from the 100,000 Lives Campaign interventions as one target, and it implemented “VAP care bundles,” which consisted of four relatively simple interventions, such as elevating the head of the bed. As a result of these actions, VAP decreased from 40 patients per year in 2000 to 5 per year in 2006, with an estimated savings to the institution of \$1.7 million.³⁸

Geisinger Health System

THE GEISINGER HEALTH SYSTEM (GHS) in central Pennsylvania has a pilot program named ProvenCare that offers a “90-day guarantee” on the heart bypass surgeries that its physicians perform.³⁹ The program consists of 40 steps that are designed to ensure that best practices are followed during both pre- and post-operative care and to eliminate

variation across physicians and facilities. Since the inception of the program in February 2006, preliminary findings suggest that patients have spent fewer days in the hospital, have been less likely to be readmitted for surgery-related complications, and have returned to their homes after discharge as opposed to making an intermediary stop at a nursing home. To avoid the pitfalls of the current fee-for-service financing system that rewards more procedures and trips back to the

hospital, GHS's network of hospitals charge insurers a flat fee for the surgery and half the amount of the cost of care related to the surgery three months after discharge based on historical data. No charges are incurred for follow-up treatment beyond this amount. Thus, the incentive exists to administer high-quality care as efficiently as possible to avoid preventable readmissions and to stay within the capitated allowance.

Measurement Framework: Evaluating Efficiency Across Patient-Focused Episodes of Care

Appendix B

Measuring Efficiency Across Patient-Focused Episodes of Care Steering Committee

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Measurement Framework: Evaluating Efficiency Across Patient-Focused Episodes of Care

Appendix C

Application of Key Terms and Definitions: Case Scenario

THE FOLLOWING PRESENTS an exercise in which the concepts of cost and quality as measures of efficiency can allow for judgments of the value of care delivered to patients. Table 1 shows that the “average cost of care per diabetic episode” for Physician 1 is \$1,500. What this means, quite simply, is that the average reimbursable expense (for services billed to an insurer) for diabetes care delivered to Physician 1’s panel of patients over some time interval was \$1,500. One might argue that this amount does not truly capture the total cost of care for those diabetics, but that argument is about the validity of the measure and not about the underlying construct. So, for the moment, let us proceed.

Table 1

PHYSICIAN	AVERAGE COST PER DIABETIC EPISODE
1	\$1,500

Table 2 shows that the cost of diabetes care for Physician 2 is \$1,250—significantly less than that for Physician 1. It would be accurate and meaningful to state that Physician 2 provides diabetes care (on average) at a lower cost than does Physician 1. But the inferences one can make from that statement are limited; it is a matter of fact, but it provides insufficient basis for a decision about which physician is more efficient.

Table 2

PHYSICIAN	AVERAGE COST PER DIABETIC EPISODE	NOTES
1	\$1,500	
2	\$1,250	Physician 2 provides diabetes care at a lower cost than Physician 1.

Table 3 provides critical additional information about the quality of care that Physicians 1 and 2 provide. They have very different rates of success with respect to achieving an outcome (HgbA1c target) relevant to (that is, an indicator for) a health benefit. It is accurate to suggest that Physician 1 provides higher quality diabetes care⁴⁰ than does Physician 2 (just as it was accurate to suggest that Physician 2 provides lower cost care).

Table 3

PHYSICIAN	AVERAGE COST PER DIABETIC EPISODE	PERCENTAGE OF PATIENTS AT HgbA1c TARGET	NOTES
1	\$1,500	80	
2	\$1,250	60	Physician 1 provides higher quality diabetes care than Physician 2.

Does that mean that Physician 1 is more efficient? Using the definition of efficiency adopted by the Committee, the answer must be “we don’t know.” Physicians 1 and 2 do not achieve the same outcome (so we cannot use their relative costs to make an inference about efficiency), and they do not achieve the different outcomes at the same cost (so we cannot use their relative outcomes to judge efficiency).

Fortunately, we meet Physician 3 in Table 4. Physician 3 achieves the same outcome as Physician 1 but at a lower cost. Physician 3 provides care at the same cost as Physician 2 but achieves a better outcome. So Physician 3 is clearly more efficient than Physicians 1 and 2. While we can make no comment about Physicians 1 and 2, we have the data that we need to make an important observation that is relevant to our understanding of the performance of all physicians in the set.

What if Physician 3’s outcome was better than Physician 1’s (e.g., 90 percent) or was achieved at a lower cost than Physician 2’s (e.g., \$1,000 per episode)? It is no longer strictly true that Physician 3 achieves a better outcome than Physician 1 at the same cost (or achieves the same outcome as Physician 2 at a lower cost). Are we unable to comment on efficiency because there is no strict equality?

Table 4

PHYSICIAN	AVERAGE COST PER DIABETIC EPISODE	PERCENTAGE OF PATIENTS AT HgbA1c TARGET	NOTES
1	\$1,500	80	
2	\$1,250	60	
3	\$1,250	80	Physician 3 is more “efficient” than Physician 1. (Physician 3 provides same quality at lower cost) and Physician 3 is more efficient than Physician 2 (Physician 3 provides higher quality at same cost).

Of course not. If one physician achieves a better outcome at a lower cost than another, that physician is clearly more efficient. This is the strategy behind most current efforts to assess efficiency—to array physicians on cost and quality axes and to look for those in the “northwest corner” (that is, those whose quality is above average and whose cost is below average).

Table 5 provides important additional information about Physicians 1, 2, and 3. We are reminded by the data in Table 5 that quality is multidimensional, that is, that consumers value the quality of their experience as well as the physiologic outcome associated with clinical encounters.

Table 5

PHYSICIAN	AVERAGE COST PER DIABETIC EPISODE	PERCENTAGE OF PATIENTS AT HgbA1c TARGET	PERCENTAGE OF PATIENTS “VERY SATISFIED” WITH COMMUNICATIONS
1	\$1,500	80	90
2	\$1,250	60	90
3	\$1,250	80	60

Table 5 shows that Physicians 1, 2, and 3 achieve different outcomes with respect to their patients’ assessments of the quality of their communication skills. Inferences about efficiency are no longer quite so clear. On the other hand, it may be possible to make some statements about value. Which physician offers care that represents the highest value? The Committee’s answer: “That depends.” In particular, it depends on the rate at which the potential receiver of services trades off cost for one or the other outcome (clinical/physiologic or experiential) or the rate at which the receiver trades off those outcomes themselves.

These, in turn, depend on individual preferences. The high-income patient—or the patient with deep insurance—who is committed to the control of his diabetes may gladly trade off the additional cost he faces for the better outcome that Physician 1 achieves. To that patient, this cost-quality combination represents high value.

Not so, perhaps, to the patient who is less concerned about his diabetes and/or who can less afford the cost differential. And not so, perhaps, to the employer, who may face the prospect of cutting back on the benefits her company can offer if that company has to face the costs that attend Physician 1's care. From this employer's perspective, Physician 3 may represent the highest value—acceptable clinical outcomes at a lower cost. Or it may

be Physician 2, if that employer believes that a level of satisfaction of 60 percent would be seen as unacceptable (or at least perceived very negatively) by employees and their families.

The point simply is this: The value each physician/each cost-quality combination represents depends on the preferences of the individual/stakeholder making the valuation. Different people in different settings (and conceivably at different times in their lives) will value these combinations differently. Efficiency is objective; when measured as the Committee suggested, all observers would agree on rank order. The inputs of cost and quality to value are objective, but the determination itself is not.

Measurement Framework: Evaluating Efficiency Across Patient-Focused Episodes of Care

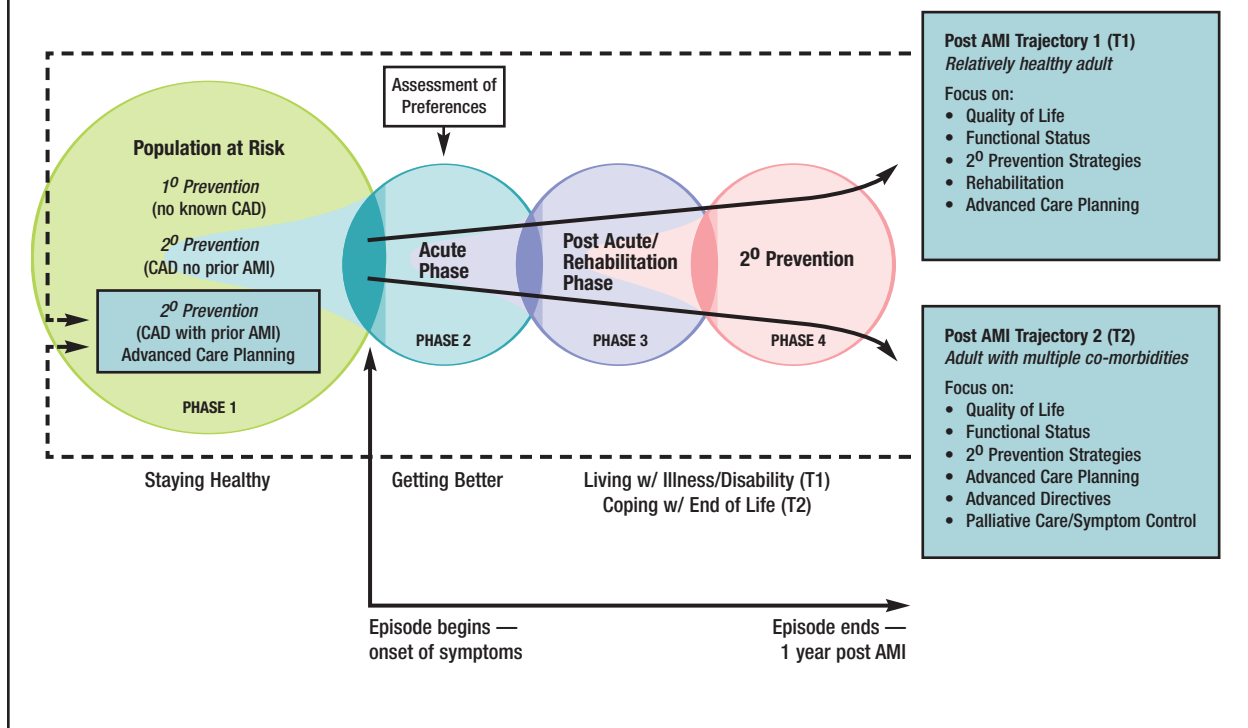
Appendix D

Context for Considering an AMI Episode

THE COMMITTEE'S CURRENT EFFORTS to define episodes of care and to establish a performance measurement framework must be understood in the context of a relatively simple goal: to improve health and reduce the burden of illness while maximizing the value of individual and societal resources allocated to healthcare. This goal implies a responsibility to consider the definition of an episode within a broader context. In the case of acute myocardial infarction (AMI), for example, a responsible evaluation of a healthcare delivery system should consider the efficiency with which each patient with an AMI received care and the frequency with which AMI occurred in the community. Decisions about investments intended to improve health and reduce the burden of illness should take into account not only improved clinical services but also strategies that could effectively prevent the acute condition.

The Committee's proposed conceptual framework and episode model for AMI (Figure D-1), however, is constrained by the realities of the current capabilities of performance measurement systems and our capacity to implement episode-based measurement systems. Therefore the Committee decided to focus primarily on the relatively discreet definition of an AMI episode that begins with the onset of chest pain and continues through the period that may be required for recovery and stabilization—recognizing the importance of the period preceding the AMI. As such, the Committee defined four distinct phases of the care of patients with AMI that purposively correspond with the Foundation for Accountability's (FACCT)⁴¹ domains of consumer needs: the population at risk, acute care, post-acute care/rehabilitation, and secondary prevention. Thus, the Committee focused on the latter three phases of the episode, because these represent the most direct, concrete, and easily measured components of AMI care. The population at risk is included in the episode model, because it remains important to look "upstream" to understand and perhaps intervene to prevent AMI.

Figure D-1: Context for Considering an AMI Episode



The Committee first recognized that individuals with AMI tend to follow one of two trajectories that have different outcomes and different ideal patterns of care—an acknowledged simplification but one that is useful for both measurement and conceptual clarity. Individuals in Trajectory 1 (T1) are relatively healthy at the time of their initial MI and, if care is effectively delivered, they should expect to return to active, productive lives following recovery from the MI. Those in Trajectory 2 (T2) have their MI superimposed on serious underlying illness (i.e., multiple chronic conditions). For these patients, AMI represents an additional (and perhaps final) assault in their progression toward increased frailty and

death. In either case, however, the Committee believed it important to identify distinct phases of care and most importantly to assess and adhere to patients' preferences.

Episode Phases

Phase 1: Population at Risk

Ideally, in evaluating the performance of a healthcare system in addressing the problems of AMI, it would be important to consider the population at risk of AMI and to capture the period preceding the event, when it is conceivable that the first heart attack could have been

prevented—either through appropriate primary prevention that occurs in populations with no prior evidence of heart disease or through secondary prevention for those with known coronary artery disease (CAD).

Phase 2: Acute Phase

The acute MI phase should begin with the onset of symptoms (although this will be difficult to measure in most current approaches) and end at 30 days postindex hospital discharge. The advantage of focusing on symptom onset lies in the opportunity it affords to address system-level interventions including the adequacy of the emergency medical response system and access to cardiac revascularization facilities in a community. Optimally, at the point of entry, patients should be assessed as to which trajectory—T1 or T2—they fall into (although at times this distinction may not be clear) so that appropriate treatment protocols can be followed. For patients who clearly enter under T2, it is imperative that their advance care plan be adhered to and that their preferences be respected. Regardless of trajectory, this phase should capture the acute care provided to the patient from arrival at the emergency department, through appropriate diagnosis, treatment, and stabilization. This would include any initial revascularization and the appropriate management of complications, and would extend through the transition to rehabilitation and post-AMI management.

Phase 3: Post-acute care/ Rehabilitation Phase

The Committee proposed that rehabilitation (Phase 3) be the focus of the episode of care from the end of the acute phase (Phase 2) through three months post-index hospital discharge (while acknowledging that post-acute care begins the day of admission and may continue for an extended period). In T1, where the patient is relatively healthy at the time of AMI, the focus should be on gaining medical stability and returning to work and normal activities of daily living. Additionally, advance care planning should be initiated. In T2, the focus also should be on achieving medical stability through symptom control and returning to pre-MI activities of daily living. Advance care planning, if not already in place, should be implemented. For patients who are coping with end of life, the emphasis should be on sustaining the highest quality of life possible along with palliative care that is respectful of the patients' and their family's preferences.

Phase 4: Secondary Prevention

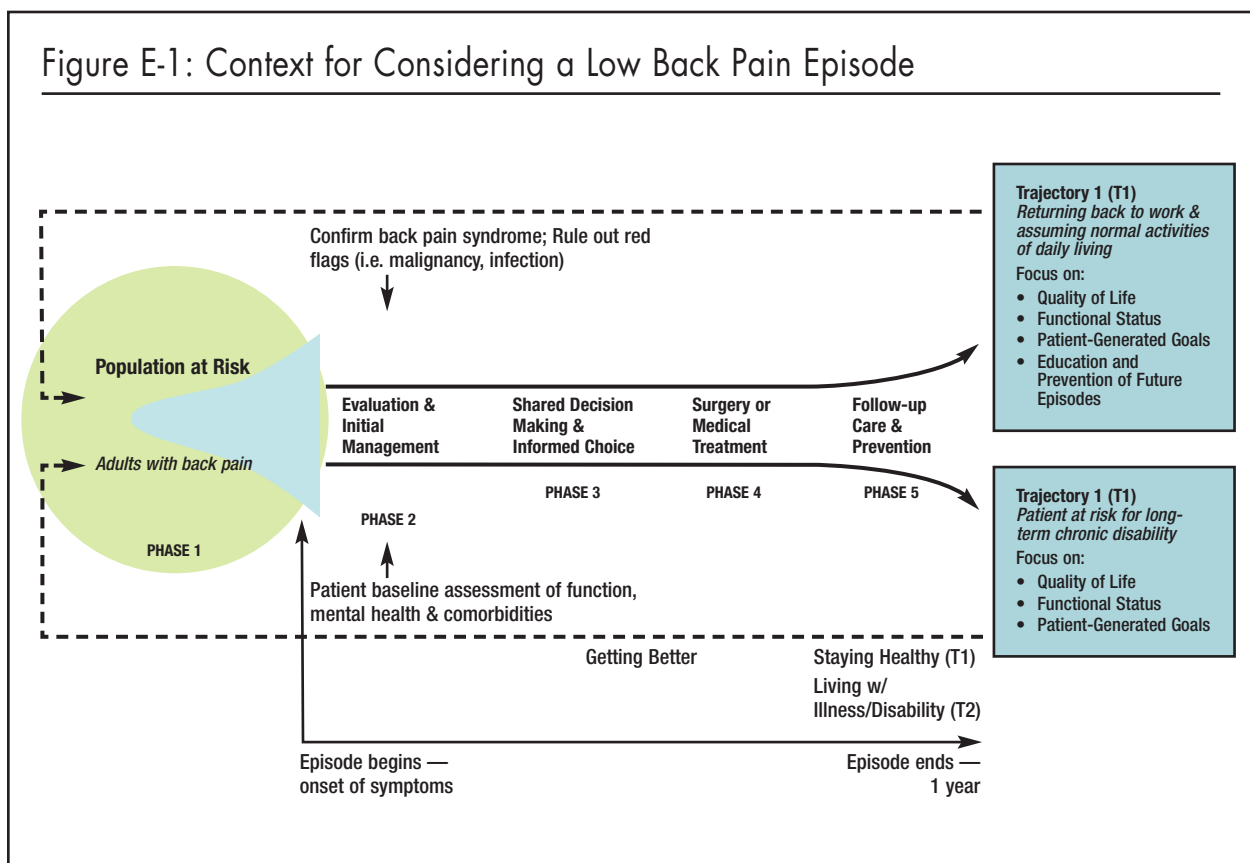
The Committee recommended that secondary prevention (Phase 4) be the focus of the episode of care from the end of rehabilitation (Phase 3) through one-year postindex hospital discharge (once again acknowledging that this phase begins at hospital admission and continues through rehabilitation), as this cohort of patients is at higher risk of reoccurrence of a heart attack. Key interventions include lipid management, control of high blood pressure, and appropriate medication, along with counseling with regard to smoking cessation, diet, and physical activity.

Measurement Framework: Evaluating Efficiency Across Patient-Focused Episodes of Care

Appendix E Context for Considering a Low Back Pain Episode

FOR “PREFERENCE SENSITIVE DECISIONS” such as spine care, treatment decisions are almost always made around pain and function. This is in contrast to “effective care decisions” relevant to, for example, acute myocardial infarction (heart attack), which is a specific diagnosis with well-defined diagnostic and treatment strategies. Therefore, an episode for low back pain must be conceptualized differently, which has implications for measuring the efficiency (quality and cost) of care as well as for reimbursement.

Figure E-1: Context for Considering a Low Back Pain Episode



Episode Phases

Phase 1: Population at Risk

The population at risk for this phase is characterized by adults with low back pain.

We begin by defining low back pain as “mechanical low back or leg pain” to designate an anatomical or functional abnormality without an underlying malignant, neoplastic, or inflammatory disease—representing 97 percent of cases.^{42,43}

Phase 2: Diagnosis and Initial Management

In the context of this episode of care, low back pain begins with the onset of symptoms. Providing an exact anatomical diagnosis for low back pain is often challenging as the majority of patients cannot be neatly categorized. Therefore, this ambiguity heightens the importance of a detailed but focused medical history and physical exam that can 1) rule out “red flags” such as malignancy, infection, trauma, or cauda equine; 2) establish the presence of comorbidities (e.g., depression) that can influence patient outcomes;⁴⁴ 3) determine a prior history of back pain also indicative of future outcomes; and 4) assess neurological manifestations that may necessitate additional diagnostic studies or a surgical option.⁴⁵

Additionally, an essential piece of information to collect during this phase is a self-assessment of the patient’s health status (e.g., SF36 or SF12). This should be done not only to inform

the provider during initial evaluation and management but also to obtain baseline data on the patient’s physical functioning, degree of pain, and mental health status, from which outcomes during the follow-up phase of this episode (Phase 5) can be benchmarked and overall judgments with regard to the efficiency of treatment interventions can be made.

Often the information gathered above is sufficient to formulate a treatment plan without the need for diagnostic imaging. The overuse of diagnostic imaging may induce demand for unnecessary interventions (e.g., surgery, injections, and further diagnostic testing such as discography, x-rays) from incidental abnormalities detected on the scan, which can potentially lead to higher morbidity and costs downstream.⁴⁶ Once “mechanical low back pain” is confirmed, we can continue to Phase 3.

Phase 3: Shared Decisionmaking and Informed Choice

During this phase, patients are offered a variety of decision support aids (e.g., written materials, videos, web-based programs, one-on-one consultations) that lay out evidence-based treatment options, including risks and benefits, for their condition. Options include, for example, surgery or medical treatment (e.g., physical therapy, medications) for low back pain. Patients then engage in discussions with their healthcare providers to make informed choices about which treatment path they wish to take based on their preferences and values. Thus, key elements of an informed choice process include using tools that objectively inform patients of their alternatives—

while elucidating their preferences and values—and incorporating both the patients’ and providers’ perspectives in the decisionmaking process.⁴⁷

Phase 4: Surgery or Medical Treatment

During this phase, the patient’s favored treatment for this preference sensitive decision is initiated in accordance with evidence-based or consensus-based protocols. The patient’s expectations of the treatment outcomes should ideally be consistent with the evidence base

(or best available knowledge) that was shared with the patient during the structured informed choice process that took place in Phase 3.

Phase 5: Follow-Up Care and Prevention

During this phase, patients are evaluated at three to six months post-treatment, including reassessment of their health status, which is compared against their baseline score obtained in Phase 2. Feedback pertaining to overall satisfaction/experience with care is also captured.

Measurement Framework: Evaluating Efficiency Across Patient-Focused Episodes of Care

Notes

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- 10 Additional information on the work of the Partners and their report, *National Priorities and Goals: Aligning Our Efforts to Transform America's Healthcare*, can be found at www.nationalprioritiespartnership.org.
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- 16 The IOM report, *Performance Measurement: Accelerating Improvement*, identified four areas in which gaps in current performance measure sets exist: 1) limited scope of measurement, including few measures of patient-centered care, equity, and efficiency; 2) narrow time window, as most measures focus on a single point in time; 3) provider-centric focus, with existing measures centering around traditional silos of care (e.g., physician's office, hospitals); and 4) narrow focus of accountability, with emphasis placed on individual provider actions. IOM, *Performance Measurement: Accelerating Improvement*, Washington, DC: National Academies Press; 2006.
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- 36 The Committee uses the term “accountable care entities” to encompass the broadest possible variety of potential organizational structures that could support the measurement framework we propose. This would encompass the various forms of integrated delivery systems discussed by Shortell and Casalino (Shortell SM, Casalino LP, Health care reform requires accountable care systems, *JAMA*, 2008; 300(1):95-97) or Fisher et al. (Fisher ES, Staiger DO, Bynum JP, et al., Creating accountable care organizations: the extended hospital medical staff, *Health Aff* 2007;26(1):w44-w57), as well as state or regional structures that could support performance measurement and improvement.
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- 40 We are fortunate to have, in the virtual world in which this case scenario has been drafted, perfect methods for risk adjustment. Therefore, readers should not be concerned that differences in outcomes here are related to anything other than quality of care.
- 41 FACCT framework for quality measurement is based on what consumers identified as their needs across the lifespan: staying healthy, getting better, living with illness or disability, and coping with end of life.
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ISBN: 978-1-933875-42-2

